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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,157	ALWAN ET AL.	
	Examiner	Art Unit	
	JOHN PANI	3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2009 and 07 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-43* is/are pending in the application.

4a) Of the above claim(s) *24-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,18-23 and 41-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/25/09,8/13/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on 8/7/2009 is acknowledged. The traversal is on the ground(s) that "all the claims are in fact directed to single general inventive concept. This fact has been implicitly acknowledged by the three previous Office Actions issued in this application. The alleged differences noted in the Restriction Requirement have been present since the application was originally filed". This is not found persuasive because claim 1 has been clearly amended to remove "touching the upper surface" and has added "the processor module is configured to determine the gait characteristic based on the signal from only a single sensor module"; claim 24 is a method that requires that the sensor be touching the upper surface of a floor and has been amended to require that the method is carried out such that "the gait characteristics are determined based on the signal from only a single sensor module". These differences have not been present since the original claims were filed as they are the result of amendments to the claims. However, the restriction between Groups I and III has been withdrawn as no substantive differences were added between these Groups and therefore claim 41 has been examined herein.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claims 1 and 41 are objected to because of the following informalities:

In reference to Claim 1

In line 5, it is suggested to replace "acceleration, vibration, and deflection signal" with –at least one of an acceleration signal, a vibration signal, and a deflection signal--. In lines 8-9 it is suggested to replace "the acceleration, vibration, and deflection signal" with --the at least one signal--. In line 10 it is suggested to insert --at least one-- prior to "signal". In line 12 it is suggested to insert --at least one-- prior to "signal".

In reference to Claim 41

In line 5 it is suggested to insert –a—prior to "floor acceleration", to insert –a—prior to "floor vibration" and --a-- prior to "floor deflection". In line 6 it is suggested to insert --at least one-- prior to the second instance of "signal". In line 9 it is suggested to replace "acceleration, vibration, and deflection" with –at least one--. In line 11 it is suggested to insert –at least one—prior to "signal". In line 12 it is suggested to insert –at least one—prior to "signal".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-23 and 43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1, 24, 41, and 43 include the limitation "based on the signal from only a single sensor module". This limitation does not appear to be supported by the original disclosure, as at no point does the disclosure state that the invention is such that gait characteristics are "based on the signal from only a single sensor module". In fact, the specification seems to support the fact that the invention can in fact base gait characteristics on multiple single sensor modules, as evidenced at least by claims 10, 11, 29, and 30 (which include using rate-of-travel detectors which appear to be separate sensor modules based on Fig. 2). Further, the original disclosure does not appear to state that the signal from only a single vibration/acceleration/deflection sensor module is used.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-9, 12-16, 18-23, 42, and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0107649 to Takiguchi et al. ("Takiguchi").

7. Takiguchi teaches:

In reference to Claim 1

A gait monitoring system for monitoring gait characteristics of a subject, said system comprising: a sensor module (at least 10) configured to touch an upper surface of a floor (note that the limitation "configured to touch an upper surface of a floor" has been interpreted to mean "capable of touching an upper surface of a floor" in light of Applicant's amendment deleting "touching"; either of Fig. 19A or 19B could be placed on the upper surface of a floor), the sensor module configured to detect at least one of floor acceleration, floor vibration, and floor deflection and to provide acceleration, vibration, and deflection signal (see at least [0051-0052]), wherein the subject can walk on the upper surface of the floor in proximity to said sensor module; and a processor module (13 or various routines which 13 controls/performs) that is configured to analyze the acceleration, vibration, and deflection signal and to determine gait characteristics based on the signal, wherein the processor module is configured to determine the gait characteristics based on the signal from only a signal sensor module (see [0055-0154]).

In reference to Claim 2

The system of claim 1 (see above) further comprising an output module (15) for receiving data indicative of the gait characteristics.

In reference to Claim 3

The system of claim 1 (see above) wherein said output module comprises at least one of display, alarm, memory storage, communication device, printer, buzzer, PDA, lap top computer, computer, audio or visual alarm, and light (see [0051]).

In reference to Claim 4

The system of claim 3 (see above) wherein said communication device comprises at least one of modem, pager, network interface, Ethernet card, serial communications port, parallel communications port, telephone, and PCMCIA slot and card (Fig. 19B).

In reference to Claim 5

The system of claim 1 (see above) wherein said sensor module and processor module are in wireless communication (see [0150]).

In reference to Claim 6

The system of claim 5 (see above) wherein said wireless communication comprises at least one of RF link, an infrared, cellular phone line, optical and electromagnetic (see [0150]).

In reference to Claim 7

The system of claim 1 (see above) wherein said sensor module and processor module are in a hard wired communication (see [0150]).

In reference to Claim 8

The system of claim 7 (see above) wherein said hard wired communication comprises at least one of electronic, integrated circuit, electromagnetic, wire, cable, fiber optics, a phone line, twisted pair, and coaxial (see [0150]).

In reference to Claim 9

The system of claim 1 (see above) further comprising a rate-of-travel detector to determine the rate of travel of the subject (see [0108]).

In reference to Claim 12

The system of claim 9 (see above) wherein said gait characteristics of the subject includes at least two of step count, pace, normal gait condition, limp, shuffle, falls, average walking velocity, step length, and stride length (see [0059-0150]).

In reference to Claim 13

The system of claim 1 (see above) wherein said gait characteristics of the subject includes at least two of step count, pace, normal gait condition, limp, shuffle, and falls (see [0059-0150]).

In reference to Claim 14

The system of claim 1 (see above) wherein the processor is configured to distinguish between steps of a human being and a fall of a human being (see Figs. 2-5, the processor produces visual outputs of the frequency spectrum of the sound vibrations, these frequency graphs would distinguish between steps and a fall in the sense that the data from the two occurrences would be displayed differently; alternatively, walking downstairs is a controlled fall and is distinguished from regular steps, see [0063]).

In reference to Claim 15

The system of claim 1 (see above) further comprising an archival storage module (14).

In reference to Claim 16

The system of claim 15 (see above) wherein the processor module is configured to perform at least two of longitudinal analysis of gait characteristics, pattern recognition, and identification determination, wherein identification determination

associates gait characteristics with a particular subject; and said archival storage module stores the at least two of longitudinal analysis of gait characteristics, pattern recognition, and identification determination (see [0129-0140]).

In reference to Claim 18

The system of claim 1 (see above) further comprising a second processor module, wherein said second processor module is configured to analyze gait characteristics, pattern recognition, and identification determination data, the identification determination data associating gait characteristics with a particular subject (see [0129-0140], the term "processor module" is interpreted such that it could be either a physical processor, or actions run by a processor; in this second interpretation, the routines claimed as the actions of the "second processor module" are the "second processor module" and the other routines are "the processor module").

In reference to Claim 19

The system of claim 1 (see above) wherein the subject is one of a human and an animal (could be used with either).

In reference to Claim 20

The system of claim 1 (see above) wherein the subject is an animate or inanimate object (could be used with either).

In reference to Claim 21

The system of claim 1 (see above) further comprising a fall module configured to: process data received from said sensor module; recognize data that is consistent with the fall of a human body; and provide notification of a fall based on the recognized data

(Note that a step is a fall of a human body, as it is the human's weight being transferred to the ground against gravity; herein the "fall module" is interpreted as the actions of the analyzer which input the microphone data and output the frequency spectrum. The analyzer clearly "recognizes" this data in the sense that it inputs it and converts it to a frequency spectrum which is output. The frequency spectrum itself is a "notification of a fall" if it displays the information from a fall. Alternatively, walking downstairs is essentially a controlled fall).

In reference to Claim 22

The system of claim 1 (see above) further comprising a step module configured to process data received from said sensor module (see [0075]).

In reference to Claim 23

The system of claim 1 (see above) further comprising a second processor module in communication with said system (note that 13 performs/controls multiple routines which could be interpreted as separate "processor modules").

In reference to Claim 42

A gait monitoring system, said system comprising: a sensor device comprising: a housing (see Figs. 19A, 19B) configured to be placed on a floor surface in a free-standing position (capable of this); and a sensor (10) configured to touch the floor surface (capable of this); detect at least one of floor acceleration, floor vibration, and floor deflection (see [0052-0053]); and generate a signal based on the detected at least one of floor acceleration, floor vibration, and floor deflection (see [0054]); a processor unit (13) configured to communicate with the sensor device and determine gait

characteristics based on the signal, the determined gait characteristics including identifying at least two of a normal gait characteristic (i.e. walking), an abnormal gait characteristic (i.e. running) and a human body fall (i.e walking downstairs; see [0057-0150]); and an output device (15) configured to output the determined gait characteristics, the output including different outputs (see Fig. 5 and [0063]) for the at least two of normal gait characteristic, abnormal gait characteristic, and human body fall.

In reference to Claim 43

The system of claim 42 (see above) wherein the processor unit is configured to determine the gait characteristics based on the signal from only a single sensor device (13 bases gait characteristics on a signal from 10).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi as applied to claim 9 above, and further in view of US Pat. No. 6,006,165 to Okada ("Okada").

Takiguchi teaches the system of claim 9 (see above) but do not expressly disclose a rate-of-travel detector with a plurality of beam breaks, floor switches, or door switches. Okada teaches a speed measuring apparatus that uses a plurality of beam breaks (see col. 3 lines 1-45). It would have been obvious to one having ordinary skill in the art at the time of the invention to have added a speed measuring device with a plurality of beam breaks in order to allow duplicity of speed measurements, thereby increasing/verifying the system accuracy.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi as applied to claims 9 above, and further in view of US Pat. No. 5,831,937 to Weir et al. ("Weir").

Takiguchi teaches the system of claim 9 (see above) but does not explicitly disclose using a rate-of-travel detector using ultrasonic communication. Weir teaches a gait analysis system with a rate-of-travel detector that uses ultrasound and infrared (see col. 4 line 65-col. 5 line 44). It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the system of Takiguchi by adding a rate-of-travel detector similar to that of Weir because this would allow for duplicity of speed measurements, thereby increasing the systems accuracy.

11. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi as applied to claim 1 above, and further in view of US Pat. No. 5,081,297 to Lebel et al. ("Lebel").

Takiguchi teaches an analyzer which accomplishes the steps which claim 41 requires but does not explicitly teach that the analyzer uses computer program product comprising computer usable medium having computer logic embedded thereon for enabling a processor in a computer system to cause the computer system to carry out these steps. It is unclear whether Takiguchi uses hardware or software. Lebel teaches (see col. 3 lines 20-35) that replacing hardware with software allows for a space-saving design. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have made Takiguchi such that it had a processor and software which caused the processor to carry out the steps of the analyzer in order to provide a space-saving design over a hardware/circuitry based design as taught by Lebel.

12. Claims 1-4, 7-9, 12, 13, 15, 16, and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 4,110,730 to Varecka et al. ("Varecka") in view of US Pat. No. 4,214,485 to Berger et al. ("Berger").

In reference to Claim 1

Varecka teaches a gait monitoring system (see Fig. 1) for monitoring gait characteristics of a subject in which a sensor module (10) configured to touch the ground is configured to detect at least one of floor acceleration, floor vibration, and floor detection and provide at least one of acceleration, vibration, and deflection signal (see col. 2 lines 14-35) wherein the subject can walk on the upper surface of the floor in proximity to said sensor module (see col. 2 lines 40-45); and wherein a processor

module (parts 14-60) is configured to analyze the acceleration, vibration, and deflection signal and determines gait characteristics based on the signal (see col. 3-col. 5), wherein the processor module is configured to determine the gait characteristics based on a signal from only a single sensor module (see Fig. 1). However, it is unclear if the sensor module is configured to touch the upper surface of the floor.

Berger teaches a geophone which is mounted on the floor for detecting vibrations from an intruder (see col. 1 lines 58-61). It would have been obvious to one having ordinary skill in the art at the time of the invention to have made the system/method of Varecka with a geophone configured to be attached to the surface of the ground as taught by Berger because it is obvious to use a known improvement to carry out a known objective, and Berger clearly shows that it is known to use a geophone configured to be attached to the floor/ground for picking up footstep vibrations in intruder detection systems.

In reference to Claim 2

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches an output module (66, 68, "explosive") for outputting data indicative of the gait characteristics (see col. 6 lines 1-10).

In reference to Claim 3

Varecka in view of Berger teaches the system of claims 2 (see above) and Varecka further teaches an output module that comprises at least one of display, alarm, memory storage, communication device, printer, buzzer, PDA, lap top computer, computer, audio or visual alarm, and light (see col. 6 lines 1-10).

In reference to Claim 4

Varecka in view of Berger teaches the system of claim 3 (see above) and Varecka further teaches wherein said communication device comprises at least one of modem, pager, network interface, Ethernet card, serial communications port, parallel communications port, telephone, and PCMCIA slot and card (see col. 6 lines 1-10).

In reference to Claims 7 and 8

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches the sensor module and processor module are in a hard-wired communication comprising at least one of electronic, integrated circuit, electromagnetic, wire, cable, fiber optics, a phone line, twisted pair, and coaxial (see Fig. 1).

In reference to Claim 9

Varecka in view of Berger teaches the system of claim 1 (see above) and Varecka further teaches a rate-of-travel detector (col. 4 lines 30-40).

In reference to Claim 12

Varecka in view of Berger teaches the system of claims 9 (see above) and Varecka further teaches the characteristics of the subject includes at least two of step count, pace, normal gait condition, limp, shuffle, falls, average walking velocity, step length, and stride length (see col. 3- col. 5).

In reference to Claim 13

Varecka in view of Berger teaches the system of claim 9 (see above) and Varecka further teaches the gait characteristics of the subject includes at least two of step count, pace, normal gait condition, limp, shuffle, and falls (see col. 3-col. 5).

In reference to Claims 15

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches an archival storage module (see col. 3-5).

In reference to Claims 16

Varecka in view of Berger teaches the system of claim 15 (see above) and Varecka further teaches the processor module is configured to perform at least two of longitudinal analysis of gait characteristics, pattern recognition (recognizes at least walking vs. running), and identification determination, wherein identification determination associates gait characteristics with a particular subject (identifies "personnel"), and said archival storage module stores the at least two of longitudinal analysis of gait characteristics, pattern recognition, and identification determination (see col. 3 - col. 5).

In reference to Claim 19

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches the subject is one of a human and an animal.

In reference to Claim 20

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches the subject is an animate or inanimate object.

In reference to Claim 21

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches a fall module configured to process data received from said module; recognize data that is consistent with the fall of a human body; and provide

notification of a fall based on the recognized data (Note that a step is a fall of a human body, as it is the human's weight being transferred to the ground against gravity. The various circuitry of Varecka recognizes vibration data consistent with a foot fall and sets off a notification --i.e. an explosion-- based on this).

In reference to Claim 22

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches a step module (24) configured to process data received from said sensor module.

In reference to Claim 23

Varecka in view of Berger teaches the system of claims 1 (see above) and Varecka further teaches a second processor module (36) in communication with said system.

Response to Arguments

13. Applicant's arguments with respect to claims 1-6, 18-23, and 41-43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN PANI whose telephone number is (571)270-1996. The examiner can normally be reached on Monday-Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JP 10/28/09

/Max Hindenburg/
Supervisory Patent Examiner, Art Unit 3736